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ABSTRACT

While it is customary to consider "information" synonymous with true information, given its societal significance in the modern world, a wider perspective on the veracity and ephemerality of information is imperative. A typology of message veracity contains four types: informational, misinformational, disinformational, and noninformational. Resulting from the interaction between sender and receiver, these types represent the perceptions by both parties of the truth or falsity of a message. An informational message is considered true by both parties; a misinformational message is considered true by the sender but false or irrelevant by the receiver; a disinformational message is considered false by the sender but accepted as true by the receiver; and a noninformational message is considered false by both parties. Difficulties arise in an information society when the number of misinformational and disinformational messages outnumber the informational messages, while a condition of general distrust is created by noninformational messages. The ephemerality of all information poses additional problems. Data are considered to have the shortest life and the least meaning and "information" falls in between, while knowledge is generally considered as having the longest life and carries with it the greatest meaning. Thirteen references are provided. (Author/RAA)

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ABUSING INFORMATION

Problem Planning in an Information Age

by

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ABUSING INFORMATION:
Problem Planning in an Information Age

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Truth is rightly named the daughter of time . . .
-Francis Bacon, *Novum Organum*

Introduction

There seems to be little doubt that we are entering upon an age predominated by *information* and *informational phenomena* (1,2). The Information Age is characterized by the effects of modern technology on the ability of individuals to conduct their affairs; of a rapidly expanding base of knowledge and relevant information; and of the growing awareness that information is a social problem. Most of our attention as information scientists has been directed toward information handling problems, and their immediate solutions.

The focus of this paper is *not* the handling of information, but the effects of information, not necessarily information technology, on human affairs. Two interrelated concepts are considered: the truthfulness of information (*veracity*) and the timeliness of information (*ephemerality*). In a society, and at a time, when informational phenomena are disturbing the status quo and are considered by many to be a social problem in need of solutions (3,4, 5,6), we need to stop periodically to consider the phenomenon of information in its broader societal contexts. One of the paramount aspects of information is truth, or *veracity*, yet it is rarely considered in Information Science. One framework within which to consider the effect of truth in an Information Age is suggested. This approach skirts the murkier philosophical and metaphysical issues of truth by adopting an evolutionary, relativistic perspective on veracity.

Another important aspect of information is its mutability with time. It is suggested and illustrated that information is *ephemeral*. A framework for interpreting "information" as existing in, at least, three forms: *data*, *information* and *knowledge*. is proposed. The interaction of the veracity and the ephemerality of information in its three forms is demonstrated with examples.

The Veracity of Communicated Information

Within a communication act, a message is transmitted by a sender to one or more receivers. These senders and receivers have relatively* unique knowledge structures which are in the process of

*They must share some information and knowledge, but their total sets are not identical.

sharing elements of information. These individual knowledge structures contain ideas and values, including assessments of the degree of surety, i.e., the perceived truth, of the information contained. A communicated message can be classified into four types; these four types resulting from a consideration of two possible states of veracity, *true* and *false*, about a message occurring in both the sender and the receiver(s). See Figure 1.

Figure 1

TYPES OF MESSAGES

		Sender State of Veracity	
		True	*False*
Receiver State of Veracity	*True*	INFORMATION	DISINFORMATION
	False	MISINFORMATION	NONINFORMATION

The first type of message is called, not surprisingly, an *informational message*. An informational message is perceived to be *true* by both the sender and the receiver(s). It is the desired state of affairs for sociable human interaction. The second type of message is called a *misinformational message* and occurs when the sender perceives the message to be *true*, or relevant, while the receiver(s) perceive(s) it to be *false*, or irrelevant. Misinformational messages can range from the message noise which clutters our daily lives to an ineffective response to a stated question. A misinformational message is useless and annoying but not intentionally deceptive. Two types of messages are intentionally deceptive: disinformational and noninformational messages. A *disinformational message* is perceived to be *false* by the sender while accepted as *true* by the receiver(s); a believed lie. A *noninformational message* is perceived to be *false* by both the sender and the receiver(s); a "bare-faced" lie.

Informational messages are not normally problem producing, because they are what they are expected to be, transfers of truthful information. Noninformational messages are little more than a nuisance. They are a social problem on their way to a solution, because the deceptive information has been identified and can be countered. Misinformational messages are also a nuisance but with a disquieting side that will be considered later.

The most problematic type of message is the disinformational message; the intentional deception which is not (immediately) detected and countered. Disinformation is a major basis of power (and seems to have evolved as a concept in the political sphere of our societal knowledge). Two subtypes of disinformation can be said to exist: omissive disinformation and commissive disinformation. An *omissive disinformational message* is designed to mislead without actually conveying any verifiably false information. A

commissive disinformational message is a blatant lie containing verifiably false information. The boundary between an omissive and a commissive disinformational message is hazy, but both subtypes of disinformational message are significant social problems in an Information Age.

The theme of this paper, *abusing information*, limits the discussion of message types to those containing false information: misinformation, disinformation and noninformation.

Misinformation, as irrelevant information, is a social nuisance. However, its frequency of occurrence can elevate to stress-producing proportions. For example, have you ever tried to telephone a specific individual in a large, decentralized organization without having a specific telephone number? How many false transfers will a person accept before discontinuing the attempt to communicate? Or, have you ever sought directions from a person on the street and been sent the wrong way? A heavily misinformational environment might be representative of a well-meaning, though poorly informed citizenry; or, it might be representative of an uncaring citizenry.

Disinformation, as a believed lie, is the most sinister type of message. It is the dark side of information, and the basis for power. Lying is deliberate, with malice, forethought and intent. Its intention is to mislead and misdirect the thoughts and actions of the receiver(s), bending them to the will of the deceptive sender. Lies occur at all levels of human interaction. For the individual, they have their greatest effect, or their highest "whomp" (7) value, when disseminated by someone close to the receiver, within the trusted circle of friends. For the society, they have their greatest effect, and highest "whomp" value, when disseminated by powerful organizations which influence and effect the lives of many individuals, such as governments and corporations. The Watergate conspiracy was a literal heap of disinformation designed to hide abuses in the acquisition of information and the dissemination of disinformation. In the late 1930's, a research contractor suppressed a medical report warning of the respiratory dangers of asbestos. Workers and the public were disinformed about the "safety" of working with asbestos. However, not all disinformation is considered sinister. Sissela Bok (8), in *Lying: Moral Choice in Public and Private Life*, addressed the problem of lying within the framework of western traditional philosophy before considering some of the socially acceptable forms of lying, i.e., to prevent harm to others. These few altruistic cases aside, disinformation may be *the most significant* pathologic problem of the Information Age.

Noninformation, as an obvious lie, has its greatest effect on the structure of human interaction. Liars are seldom retained as close friends or associates. At best, they are mistrusted as sources of information. The responses to a noninformational message can range from annoyance to violent revolution.

The assignment of a type to a message can change over time. What

was once believed to be true is now believed to be false by the receiver(s). What was once *information* is now *misinformation*; what was once *disinformation* is now *noninformation*. It is the receiver's dilemma to determine the intent of the sender: was the sender lying or did the sender think the message was true?

A sender may come to the realization that s/he had sent a false message. If the sender makes no effort to correct the error, the message becomes *disinformation*, albeit without *premeditated* intent. Becoming aware of the falsity of a message is but one of the time-dependent characteristics of information.

The Ephemerality of Information

The essence of human society is its conception of reality. This essence is perpetuated through time by socialization; the trans-generational transfer of selected existent and historical societal knowledge. The social construction of reality (9) changes through time, involving changes in the knowledge, information and data of society. It can be concluded, therefore, that information is *ephemeral*.

Because the term "information" has such a wide range of meanings, this discussion will deal with three levels or types of "information." The first level, comprising perceptual and quantitative phenomena, is called *data*. The second level, comprising conceptual phenomena, is called (for convenience) *information*. The third level, comprising socially meaningful structures, is called *knowledge* (10,11). Data, information and knowledge can be distinguished by the types of questions they can effectively answer. Data are the response to questions of how much, how many and verification (yes/no). Information is the response to questions of what, when, where, which and who. Knowledge is the response to questions of how and why.

The class and type of specific "information" influences its ephemerality. The listing of types of "information," or responses -- data, information and knowledge -- is in descending order of ephemerality. In general, data has a shorter life span (greater ephemerality) than information which has a shorter life span (greater ephemerality) than knowledge. The degree to which this statement is generalizable is influenced by the class of "information."

The classification structure of "information" is determined by the society(ies) in which that "information" exists; "information" being the building block of a socially constructed reality. Reality is a social or folk classification scheme which varies from society to society and with time. The region of reality to which an item of data, information or knowledge is associated influences the ephemerality of that item.

The ephemerality of data, information and knowledge can be illustrated by several examples. The number of vehicles in a toll plaza

at a specific moment and the ambient temperature at a specific location are examples of highly ephemeral *data*. Both examples are likely to change continuously. The value of the speed of light in a vacuum is an example of an item of data with a very low ephemerality, changing only with a paradigm shift in Physics. The identity of the President of the United States and the address of a major corporation are examples of ephemeral *information*. Theories of the physical universe and mythologies of human creation are examples of ephemeral *knowledge*. Thomas Kuhn (12), in the *Structure of Scientific Revolutions*, dealt with changes in our theoretical scientific knowledge, and how they occur.

Having demonstrated that data, information and knowledge can all be ephemeral, we turn to the *relative* ephemerality of data, information and knowledge. A motor vehicle traffic control system, i.e., a centralized traffic light control system, will illustrate. One knowledge component of a motor vehicle traffic control system is the theory of flow dynamics used to design the control system. Two information components are the locations of inputs and outputs to/from the system, i.e., the bridges, tunnels and highways leading into and out of the traffic control system environment, and the location and times of regular traffic tie-ups. The data components of a traffic control system include the number of vehicles on the street and the indicator status of all traffic signals. These data components change second by second. The information components may change seasonally, as with vacation traffic, or with changes in the road system, i.e., new construction or re-routing. The knowledge component would change with advances or "scientific revolutions" in the science of traffic flow dynamics.

The evolution of human society can also be used to illustrate the relative ephemerality of data, information and knowledge. The religious belief system, the theory of governance and the structure of the family are examples of societal knowledge which changes very slowly (in a stable society). Religious and political revolutions share with scientific revolutions the characteristic of challenging old data and information associated with the previous religious, political or scientific knowledge structure. The location of houses of worship, the identity of office holders in a governmental administration and the times of family gatherings are examples of societal information which tend to change more frequently. The number of religious practitioners, the number of employees on an administrative payroll and the number of members of a large, extended family are examples of societal data which change relatively quickly.

Conclusion

This paper was designed to highlight and briefly examine two aspects of information -- its *veracity* and *ephemerality* -- which could prove to be of increasing significance as social problems in an Information Age. Three goals were intended in this paper. The first was to discuss possible problem areas to be considered in an

Information Age, in the hopes of avoiding some of the effluents and pollutants resulting from informational dependence. The second was to suggest two frames of reference from which to analyze informational phenomena: the message typology and the "information" or question response typology. The third was to illustrate some of the breadth and range of the domain of information in society, especially a society on the brink of an information Age.

How can this Information Age be characterized? It would seem to be a period in human societal existence when the volume of "information" is expanding at rates greater than our ability to handle it; when the interactions within society have become so complex that more and more "information" is required to make a "safe" decision; when the events of the world are becoming increasingly relevant to our daily lives and contributing to the information overload; when the number of people seeking, utilizing and generating "information" is increasing more rapidly than our abilities to adequately serve their needs; when the sheer volume of societal "information" is influencing the amount and rate of specialization and, conversely, interdependence; and, lastly, when *our knowledge* about the informational phenomenon is exceedingly sparse.

As Information Scientists, we face the monumental task of attempting to develop and formulate knowledge about the nature and role of information in modern society, and to help prepare for the twenty-first century, the Age of Information. It is *not* sufficient to simply "serve our patrons," to be what Alfred Mok (13) called "users of knowledge." We must strive to be "producers of knowledge." It does not matter whether we adopt the inductive, empirical approach or the deductive, theoretical approach to knowledge development, so long as our ultimate goal is the understanding of the *phenomenon of information.*

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